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ABSTRACT

Reported is a description of earth science departments in 21 colleges involved in the Earth Science Teacher Preparation Program (ESTPP). The program was funded by the National Science Foundation. ESTPP provides encouragement for innovation by providing planning conferences, providing consultants to visit the campuses and reinforce the positive changes that are taking place, and conducting training programs for teaching assistants in the Consortium schools. An additional function of ESTPP is to provide communication among Consortium schools to let each know what the other are doing and what results are being achieved. The project feels that the kinds of innovations that will "humanize" education include eliminating the threat of grades, trusting students to make significant decisions about topics and methods of study, and encouraging teachers to drop the role of a teacher in order to become to the students a flesh and blood human being with strengths and weaknesses. (EB)

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estpp CONSORTIUM

71/72

DATABOOK

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ED 079041

Earth Science Teacher Preparation Project
P.O. Box 1559
Boulder, Colorado 80302
Phone: 303-447-8150

Codirectors
William Romey
John Thompson

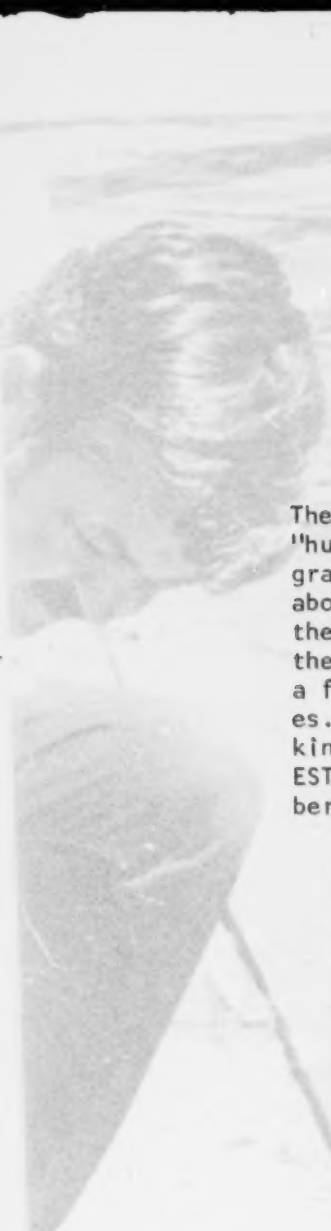
Directory prepared
by Verna Todd

ESTPP is sponsored by the American Geological Institute
and supported by the National Science Foundation.

Teachers care...and care passionately about people. ESTPP helps teachers show they care.

It has often been said that teachers teach as they were taught. All too often teachers have been taught by hearing lectures, giving recitations, and writing the answers to questions at the ends of chapters. This method ensured that the teacher kept his distance in the classroom. Almost the only personal contact a student could have with his teacher was by appointment after school. The subject matter, not the student, was the important thing. Now people are beginning to realize that it's the human being, not the subject matter, that's important. They have found that when a student feels good about himself, learning will come almost automatically. But since teachers teach as they were taught, most are still lecturing, hearing recitations, and assigning questions at the ends of chapters.

ESTPP, a program funded by the National Science Foundation, helps teachers show they care about their students by breaking the cycle of bad teaching and little learning. It enables future teachers to learn in the same kind of environment they need to create. ESTPP has formed a Consortium of earth science departments in 21 colleges. These departments have committed themselves to innovative changes that let students in these departments know their teachers care. ESTPP provides encouragement for these innovations by setting up planning conferences for the Consortium colleges and by providing consultants to visit the campuses and reinforce the positive changes that are taking place. ESTPP also conducts training programs for teaching assistants in the Consortium schools and a limited number of other schools that have requested the service. These TA training conferences assist the TA's in orienting the classes they teach to the needs of people. An additional function of ESTPP is to provide communication among Consortium schools to let each know what the others are doing and what results are being achieved.



The project feels that the kinds of innovations that will "humanize" education include eliminating the threat of grades; trusting students to make significant decisions about the topics and methods of study that will answer their own felt needs; and encouraging teachers to drop the role of a teacher in order to become to the students a flesh and blood human being with strengths and weaknesses. Is your college or university interested in these kinds of innovations? For more information, write to ESTPP, Box 1559, Boulder, Colorado 80302. Present members of the Consortium are the following:

Austin Peay State University, Clarksville, Tennessee
Boston College, Chestnut Hill, Massachusetts
Boston University, Massachusetts
California State College, Fullerton
Chadron State College, Nebraska
Colgate University, Hamilton, New York
University of Colorado, Boulder
Kansas State Teachers College, Emporia
Mankato State College, Minnesota
Michigan State University, East Lansing
Minot State College, North Dakota
University of Northern Colorado, Greeley
The University of Oklahoma, Norman
St. Lawrence University, Cantor, New York
University of South Carolina, Columbia
Southern Illinois University, Carbondale
State University of New York College at Oswego
University of Vermont, Burlington
Western Connecticut State College, Danbury
Western Michigan University, Kalamazoo
Wisconsin State University, Superior

We at ESTPP are Becky Brenton, Pat Brown, Dorothy Curtis, Gail Griffith, JoAnn Hutchinson, Bob Lepper, Lucy Powell, Sue Peters, Teddi Reynolds, Bill Romey, Carol Saathoff, Bob Samples, John Thompson, Verna Todd, Maggie Wheeler, and Bob Wohlford.

Our ESTPP Senior Consultants are John Carpenter, University of South Carolina; John Cooper, California State College, Fullerton; Barry Doolan, University of Vermont; George Hein, Educational Development Corporation; F. D. Holland, Jr., CEGS, American Geological Institute; James Lakis, Polaroid Corporation; Leo Laporte, University of California, Santa Cruz; James McLelland, Colgate University; John Shelton, Encyclopaedia Britannica Films; Edward C. Stoever, Jr., University of Oklahoma; and Jonathan Swinchatt, formerly Colgate University.

DEPARTMENT OF EARTH SCIENCE
AUSTIN PEAY STATE UNIVERSITY
CLARKSVILLE, TENNESSEE 37040

Consortium contact person: James X. Corgan

Department telephone number: 615-648-7387

Department chairman: R. Kenton Wibking

Number of earth science majors: Minor programs only

Number of earth science education majors: 0

Description of Program:

The program in earth science, developed in the last three years, offers a minor and focuses on the preparation of teachers. Although it is based on conventional lecture-lab courses, a wide range of possible study areas is offered students through open topical courses and a special problems course that allows students to be independent. A variety of upper division one-credit mini-courses is also available. All courses are graded ABCDF and efforts are being made to allow students a part in assigning their grades.

APSU

Staff

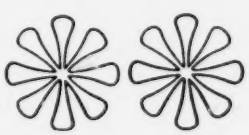
Name	Office Telephone	Home Telephone	Specialty
Corgan, James X.	615-648-7387	615-648-1253	Geology
Dimmick, Charles W.	615-648-7387	615-647-8504	Geology
Wibking, R. Kenton	615-648-7387	615-647-6005	Geography

Education Department Staff Involved in Humanistic Innovation

Name	Office Telephone	Home Telephone	Specialty
Bousman, Lois	615-648-7511	615-375-3842	Sci. Ed.
Rawlins, George	615-648-7511	615-647-0692	Sci. Ed.
Stedman, Carlton	615-648-7363	615-648-1497	Sci. Ed.

New and Special This Year:

The Department is in the process of getting approval for alternative departmental listings for most "geology" courses. This would mean that students would have a choice, for example, of geology or education credit, or of science or English credit for a particular course.



DEPARTMENT OF GEOLOGY & GEOPHYSICS
BOSTON COLLEGE
CHESTNUT HILL, MASSACHUSETTS 02167

Consortium contact person: George T. Ladd

Department telephone number: 617-969-0100 Ext. 161 or 861

Department chairman: George D. Brown, Jr.

Department secretary: Mrs. Lydia Ferrigan

Number of earth science and/or geology education majors: 12

Description of Program:

Although Boston College is a commuter college and thus has difficulty arranging humanistic activities that require out-of-class time, several faculty have implemented humanizing ideas. An experimental audio-tutorial section of the introductory course features simulated field trips and is expected to be expanded to include all of the students in the course. This course also offers students the opportunity to do project work of their choice for credit. Most upper division courses are lecture-lab programs, but here again several instructors are involved in getting to know students as people. There is a good deal of interaction between the Geology-Geophysics Department and the School of Education for the training of earth science teachers as a result of the dual appointment of George Ladd. There is also interaction between Boston College and Boston University, with students given the opportunity to take courses in either department for credit.

B C

Staff

Name	Office Telephone	Home Telephone	Specialty
Bombolakis, Emanuel	617-969-0100 ext. 583 or 873	617-528-0969	Structural Geo.
Brooks, Edward	617-969-0100 ext. 163	617-332-0403	Meteor., Astron.
Brown, George D.	617-969-0100 ext. 861	617-872-4288	Paleontology
Dudley, Pricilla	617-969-0100 ext. 162	617-566-0197	Mineral., Petro.
Hepburn, Chris	617-969-0100 ext. 2486	617-734-6097	Regional Geology
Ladd, George T.	617-969-0100 ext. 161	617-653-5347	Earth Sci. Ed.
Roy, David	617-969-0100 ext. 164	617-646-1561	Physical Strat.
Skehan, S.J., Rev. J.W.	617-969-0100 ext. 2494		Reg. Tectonics

Teaching Assistants:

Amrein, Robert
Banks, Paul
Bille, Paul
Chamberlain, Charles
Daly, Edward
DeFilippo, Ronald
Leininger, Charles
Martin, Leo
Mayberry, Robert
Mukhopadhyay, Shamita
Murphy, Daniel
Oldfield, Robert
Richter, Dorothy
Villalba, Roberto
Voss, Clifford

New and Special This Year:

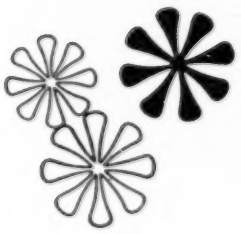
All faculty are scheduled into one lab each week. This is done on a rotating basis so each will have met all the students by the end of the year.

In the introductory course for nonmajors the lab section has self-check quizzes and a midterm used only for self-evaluation. The final in lab is graded. The grade for the lab section (which accounts for 60 percent of the total course grade) is determined by the T.A. for the section in conference with the student. The lecture grade is determined by the lecture instructor.

Undergraduate majors are helping in the audio-tutorial labs.

Undergraduates in science education classes now have increased opportunities for self-directed independent study.

The Boston College NSF in-service institute in environmental earth science operates in an open fashion with participants evaluating themselves and focuses on monthly field trips.



DEPARTMENT OF GEOLOGY
BOSTON UNIVERSITY
725 COMMONWEALTH AVENUE
BOSTON, MASSACHUSETTS 02215

Consortium contact person: Mohammed A. Gheith

Department telephone number: 617-353-2532

Department chairman: Mohammed A. Gheith

Department secretary: Mrs. Lillian D. Paralikis

Number of earth science and/or geology majors: 45

Number of earth science and/or geology education majors: 5

Description of Program:

Both teaching fellows and faculty at Boston University are actively implementing change in humanistic directions. Not only are they working for change in their own department, but they have also contacted other departments, inviting them to discussions of such statements as, "The continued existence of authoritarianism is a manifestation of fear." The faculty who are offering students the opportunity for projects of their own choice have had very good response, with many students choosing the alternative. The department has an exchange arrangement with Boston College whereby students may take geology courses from either school for credit. This arrangement promotes interaction between the schools. Boston University's is an exciting department because of the changes and new opportunities developing.

B
U

Staff

Name	Office Telephone	Home Telephone	Specialty
Brownlow, Arthur H.	617-353-2530	617-444-1699	Geochemistry
Caldwell, Dabney W.	617-353-2534	617-448-5496	Hydro. & Env. Geo.
Cameron, Barry W.	617-353-2535	617-734-3287	Paleo., Paleoecol.
Gheith, Mohammed A.	617-353-2532	617-259-8928	Mineral., Geochem.
Park, Won C.	617-353-2616	617-324-6976	Sedim., Econ. Geo.
Wolfe, C. Wroe	617-353-2531	617-664-4125	Crystall., Tecto., General Earth Sci.

Teaching Fellows:

Arora, Chauth Ram
*Hoekzema, Robert B.
Huang, Chen-Feng
Kelly, Michael A.
*Lidback, Margaret M.
Mangion, Stephen M.
O'Neill, Margaret M.
Raman, Swaminathan V.

*Attended ESTPP Training Conferences

New and Special This Year:

A new freshman seminar in "varieties of environmental problems" provides opportunities for students to investigate individually or in groups the

scientific, technical, legal, and human bases for our environmental crises. Participants will be encouraged to define their own goals in the seminar and evaluate their own success in reaching them.

Both graduate and undergraduate students are involved this fall in studies of two beaches, a local one at Nahant, Massachusetts, and one at Bar Harbor, Maine. The Nahant study, conducted by a graduate student and Dr. Cameron, has interested students in marine geology, with each student working on his own. In Maine several other graduate students, some introductory geology students, and several marine geology students are studying the dynamics of a cold water carbonate beach, doing offshore shipboard bottom sampling and scuba diving.

Lab instructors in introductory geology are being given a much freer hand in conducting labs.

A pass-fail grading system has been introduced in History of Life by Dr. Cameron.

Students in the College of Liberal Arts may now select an interdepartmental concentration in environmental studies with an advisor in each of the concerned departments.

A course in teaching geology, taken by all new teaching fellows, asks all geology department faculty to meet with the class and discuss what they believe is "good" and "bad" in their own teaching.

During the summer of 1971 an institute in field geology concentrated on actual field work, mostly with an investigative approach.

DEPARTMENT OF SCIENCE AND MATH EDUCATION
EARTH SCIENCE SECTION
CALIFORNIA STATE COLLEGE, FULLERTON
FULLERTON, CALIFORNIA 92631

Consortium contact person: John D. Cooper

Department telephone number: 714-870-3877

Department chairman: George Turner; Neil Maloney, Coordinator of Earth Science Section

Department secretary: Mrs. Luella Mitchell

Description of program:

Both upper and lower division courses in earth science at California State College, Fullerton, give students the opportunity to work on projects of interest to them. Beginning students are grouped in autonomous classes of about 24 that each teacher can conduct as he wishes. The upper division program consists of four 6-unit courses, one in each of four broad areas. The sequence of these courses and particular topics of study are determined by the student in consultation with faculty members. There are no prescribed lectures or labs. The student has two major projects each semester--one a field-oriented study and the other a literature-oriented study. Grades are determined from input by both student and teacher.

CSF

Staff

Name	Office Telephone	Home Telephone	Specialty
Buckley, Chris	714-870-3883	714-645-3365	Struct. Geol., Geophysics
Cooper, John D.	714-870-3169	714-968-9863	Paleo, Stratig.
Hansen, Mike	714-870-3883	714-524-8717	Sed. Petrology, Geochemistry, Science Ed.
Maloney, Neil J.	714-870-2158		Oceanography
Woyski, Margaret S.	714-870-2154		Ig. & Met. Pet., Mineralogy

Teaching Assistants:
Handzus, Thomas
Hottman, William

New and Special This Year:

A new 1-or 2-unit course consisting of readings and individual or small group research projects is being offered. It is intended for students interested in doing such projects and needing extra science credit or an elective. There has been fantastic initial response--over 100 signed up. Students were divided among the five staff who will meet with each of their assigned students a minimum of 3 or 4 times during the semester, but as often as the students wish to come by. Typical student comment: "I never knew science could be fun."

DEPARTMENT OF EARTH SCIENCE
DIVISION OF SCIENCE AND MATH
CHADRON STATE COLLEGE
CHADRON, NEBRASKA 69337

Consortium contact person: Larry D. Agenbroad

Department telephone number: 308-432-5571 Ext. 26 or 21

Department chairman: Larry D. Agenbroad

Department secretary: Susan Sauser (part time)

Number of earth science and/or geology majors: 20

Number of earth science and/or geology education majors: 27

Description of Program:

The Earth Science Department at Chadron State is a young one, having been established in 1967. Nevertheless, it is a very active department, with its two faculty members offering about 20 courses. As the department grows in size it is also growing in the degree of openness it offers its students. The department focuses primarily on the preparation of earth science teachers and offers students a good deal of field experience.

CSC

Staff

Name	Office Telephone	Home Telephone	Specialty
Agenbroad, Larry D.	308-432-5571 ext. 26 or 21	308-432-3179	Ground Water Geo. Quaternary Geo. Archaeology
Hoffman, Dale	308-342-5571 ext. 26 or 21	308-432-5652	Paleontology Stratig. & Sed. Paleoecology

Teaching Assistants:

Bork, Jeanne
Hanson, Dave
Spahn, Nancy

New and Special This Year:

Students are determining their own grades in ES:535--ESCP Earth Science for Teacher Preparation. A joint geology-anthropology historical float trip through the Grand Canyon is being planned. It will be an experience--not just a trip.

The students themselves are teaching Cenozoic Stratigraphy ES:536. They choose what they want to study and how to do it. Volunteers are excavating on an early man-extinct bison site. This is providing the students with the opportunity to combine their own personal projects with a field research experience. In addition to possible academic credit the students may publish the results of their experiences.

An NSF in-service institute for earth science teachers is being conducted in three off-campus locations. The first part of the 2-part course consists of 20 weeks--5 weeks each on chemistry, physics, and astronomy with emphasis on earth science application and 5 weeks of earth science to tie them all together. The second phase is a 2-1/2 week field trip.

DEPARTMENT OF GEOLOGY
COLGATE UNIVERSITY
HAMILTON, NEW YORK 13346

Colgate

Consortium contact person: James McLelland

Department telephone: 315-824-1000 Ext. 363

Department chairman: James McLelland

Department secretary: Betty Bovee

Number of earth science and/or geology majors: 20

Number of earth science and/or geology education majors: 0

Description of Program:

The 10-year old Geology Department at Colgate requires 8 semester courses approved by the Department for a concentration. No particular courses are required, which offers the student great flexibility, especially since some of these courses approved for a particular student may be offered by other departments. Faculty are giving increased emphasis to independent study and doing geology. Self-grading is being used for the independent studies and, to a large extent, in "structured" courses.

Staff

Name	Office Telephone	Home Telephone	Specialty
Cecil, Blaine	315-824-1000 ext. 363	315-824-3425	Sediments, Geochm.
Linsley, Bob	315-824-1000 ext. 363	315-824-3143	Paleontology
McLelland, James	315-824-1000 ext. 363	315-824-1854	Struct. Geology, Petrology
Miller, Dan	315-824-1000 ext. 363	315-824-0980	Glacial Geo., Geomorphology
Newberg, Don	315-824-1000 ext. 363	315-824-3605	Mineralogy, Econ. Geology

Teaching Assistants:

Fumal, Thomas
Trithart, Robert

New and Special This Year:

Eight students in the department are spending the semester off-campus studying geology. They are moving from Canada to Florida, camping and staying in private cabins. The staff is rotating, each spending three weeks with the group. The learning that takes place on this trip far exceeds that of the conventional classroom experience. Both cognitive and affective learning occur. The latter is greatly enhanced by the experience of living together in an atmosphere that is often similar to a spontaneous encounter session.

Undergraduate majors are being introduced early to teaching through taking responsibilities in labs for introductory courses and mineralogy.

Spontaneous and frequent weekend camping and geology field trips get students and faculty together as people to share geology informally. Perhaps approximately six a semester will be held.

SCHOOL OF EDUCATION
AND DEPARTMENT OF INTEGRATED STUDIES
UNIVERSITY OF COLORADO
BOULDER, COLORADO 80302

School of Education:
Consortium contact person: Ron Anderson
Department telephone number: 303-443-2211 Ext. 6937
Department chairman: Karl Openshaw
Department secretary: Dorothy Briggle
Number of science education majors: about 30 per year

Department of Integrated Studies:
Consortium contact person: Aaron Sayvetz
Department telephone number: 303-443-2211 Ext. 6246
Department chairman: Paul Thompson
Department secretary: Lucille Cliff
No major offered

Note: The impetus for innovation in these department was originally provided by their cooperation in an UPSTEP program. The names listed as staff are those that are involved in the UPSTEP program from both departments and from ESTPP and also those who have become interested in humanistic innovation from both departments.

CU

Description of Program:
The UPSTEP program at Colorado University involves science and math segments and a 2-semester upper division course in Special Scientific Environmental Studies offered by the Integrated Studies Department with cooperation of the Department of Secondary Education. It is this latter cooperative segment that is participating in the Consortium. The course is made up of 25 students who are either juniors in biology, geology, physics, or chemistry or are registered with the education department. The course is highly humanistic and allows the students, a large proportion of which it is hoped will become teachers, wide opportunity for independent study in science. Each works out a plan for what he wants to do during the term. Students will be encouraged to work with children in local schools on their projects. No exams will be given, and students will have an important role in evaluating their own work.

Staff

SCHOOL OF EDUCATION

Name	Office Telephone	Home Telephone	Specialty
Anderson, Harold	303-433-2211 ext. 7695	303-494-7712	Science Education
Anderson, Ron	303-443-2211 ext. 8818	303-494-7933	Science Education
Cousins, Jack	303-443-2211 ext. 6392	303-499-9098	Soc. Sci. Ed.
Olson, Miles	303-443-2211 ext. 8430	303-499-6990	English Ed.
Swadener, Marc	303-443-2211 ext. 7057	303-494-0917	Math Education

Staff (continued) SCHOOL OF EDUCATION

Name	Office Telephone	Home Telephone	Specialty
Taylor, Bob	303-443-2211 ext. 6517	303-494-6388	Secondary Ed.

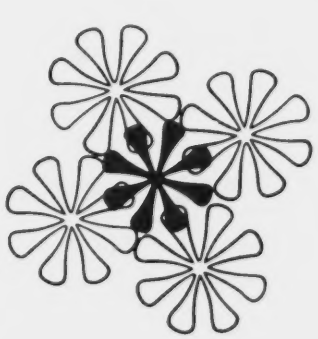
Staff DEPARTMENT OF INTEGRATED STUDIES

Name	Office Telephone	Home Telephone	Specialty
Griffith, Gail	303-447-8150	303-444-5825	Earth Science
Klank, Benno	303-443-2211 ext. 8097	303-449-1527	Physics
Kraemer, Margaret	303-443-2211 ext. 8084	303-443-2570	Physical Science
Rhines, Karin	303-443-2211 ext. 8097	303-665-5951	Biology
Romey, William	303-447-8150	303-499-9192	Earth Science
Sayvetz, Aaron	303-443-2211 ext. 6158	303-444-3281	Physical Science
Thompson, John	303-447-8150	303-499-4029	Earth Science

Teaching Assistants:

Deauna, Mel
Duncan, Dean
*Gordon, Blake
Hoffman, Howard
*Joko, Richard
Joseph, David
Philips, Donald
Roxas, Segundo
Timmons, John
Tonso, Jerry

*Attended ESTPP Training Conferences



DEPARTMENT OF PHYSICAL SCIENCE
KANSAS STATE TEACHERS COLLEGE
EMPORIA, KANSAS 66801

Consortium contact person: Thomas E. Bridge

Department telephone number: 316-343-1200, Ext. 472

Department chairman: Charles Creager

Department secretary: Marcia McKinney

Number of earth science and/or geology majors: 2

Number of earth science and/or geology education majors: 14

Description of program:

The earth science program can be one of two types as determined by student choice: traditional or problem-oriented. In the traditional program the work is evaluated by lab performance and tests prepared by the course instructor. In the problem-oriented program the student decides upon a problem of mutual interest to himself and a professor, is directed to audio-tutorial materials to obtain needed skills and concepts, and explores the problem independently and with theprofessor. Criteria for credit in problem-oriented programs are demonstrated ability and skills in research and proficiency in the problem area as shown in objective tests by instructors in the area. All students have the option of taking 25 percent of their course work on a pass-no credit basis.

KSTC

Staff

Name	Office Telephone	Home Telephone	Specialty
Backhus, DeWayne	316-343-1200 Ext. 472	316-342-9523	Earth Science - Science Education
Bridge, Thomas	316-343-1200 Ext. 472	316-279-3541	Geology
Crawford, Eugene	316-343-1200 Ext. 472	316-342-6852	Physics - Science Education
Johnston, Paul	316-343-1200 Ext. 472	316-342-4098	Geology
Witten, Gerald	316-343-1200 Ext. 472	316-342-2688	Science Education-Physics

New and Special This Year:

Although it affects the entire university rather than just the department, members of the department have been instrumental in constructing a proposal for a Bachelor of Special Studies degree. The program for this degree would be planned by the student himself and could consist of credit for work experience or proficiencies certified by qualified supervisors and relevant to the student's goals, extension or correspondence courses, traditional university courses, or credit by examination. This program would be submitted to a review board that could require from 0 to 30 credit hours of course work to ensure the breadth and depth commensurate with a baccalaureate degree. The only other requirement would be that at least 30

semester hours be earned in residency at Kansas State.

The Physical Science Department has proposed two new degree programs, one in earth science with an emphasis in environmental science and one in the environmental science teaching field.

WILSON CAMPUS SCHOOL,
SCHOOL OF EDUCATION AND DEPARTMENT OF GEOGRAPHY
MANKATO STATE COLLEGE
MANKATO, MINNESOTA 56001

Consortium contact person: Glenn Erikson

Wilson Campus School:
Telephone number: 507-389-1122,-1123, or -6322
Director: Donald Glines
Secretary: Cheryl Williams

School of Education:
Telephone number: 507-389-1215
Dean: Ben Buck

Department of Geography:
Telephone number: 507-389-2617
Chairman: Bert Burns

Mankato

Description of Program:
The Wilson Campus School is the "proving ground" for innovation in education at Mankato State College. The School of Education itself is in the process of establishing four centers (Center for Curriculum and Learning, Center for Cultural and Behavioral Studies, Center for Advanced Professional Proficiency, and Center for Vocational Competency) and implementing innovations that will promote earlier contact of prospective teachers with students. A proposal for establishing a FUTUREPORT is also being considered. This FUTUREPORT will be an innovative, experimental arm of the School of Education and will focus on developing teachers who are warm, empathic human beings and learners in an ever-changing world.

Wilson Campus School defines its primary purpose to be of benefit to the whole of education through continuous innovation, experimentation, research, and evaluation of new programs. Its organizational structure may be described as nongraded, individualized, and interdisciplinary in nature. Each student in this pre-K-12 school develops his own schedule to a course (or courses) of study within or across subject matter areas to whatever depth he feels is necessary for his purposes. These purposes could result in individual courses of study ranging from a traditional educational program to a series of "in depth" quests in any combination of disciplines. While the student is provided the utmost "freedom to learn," the means is provided for structured scheduling for those students whose characteristics do not adapt to such freedom. All the while, however, every effort is made to enable such students to reach their highest possible level of self-directed learning activities. No grades are given the students. Instead, a comprehensive rating system is used in an attempt to measure, as accurately as possible, the accomplishments of the individual within his capability.

-taken from "A Descriptive Study of the Wilson Campus School Evaluation," Academic Year 1969-70: an Interim Report.

The Department of Geography at Mankato, which handles the courses in earth science, is also a part of the consortium and is interested in innovation.

Wilson Campus School Staff:

Name	Office Telephone	Home Telephone	Specialty
Barkhurst, Michael	507-389-1122 -1123 -6322	507-388-2711	Social Studies
Bayless, June		507-388-8659	Special Ed.
Beebe, J. Daniel (on leave)	Office Numbers Same for All	507-388-6784	Mathematics
Biewen, Eugene		507-388-6086	English
Bothof, Timothy		507-345-4459	Music
Broughten, Gene		507-388-6086	Music
Bull, John		507-388-4242	Mathematics
Butler, Perry		507-528-3972	Art
Courts, Ann		507-388-5102	Reading
Darling, Don		507-388-6150	Mathematics
Doescher, Rosemary		507-388-5181	Mathematics
Erikson, Glenn		507-388-4136	Science
Glines, Don		507-388-9161	Director
Harder, Daniel		507-665-3272	Library
Herke, Larry		507-345-3722	Social Studies
Holden, R. Lewis		507-388-6153	Spanish
Holmes, Helen		507-388-9128	English
Jeffrey, Tom		507-387-1467	I. A.
Jekel, Jerome		507-388-2322	Research
Jensen, Orville		507-388-7430	English
Jondahl, Olga		507-387-1268	Spanish
Knight, Karen		507-387-2935	Early Childhood
Lawson, JoAnn		507-388-4750	Theatre
Matthees, Florence		507-387-7658	Mathematics
Palmer, Gail		507-388-2563	Mathematics
Russ, Lyne-te			Physical Ed.
Schmidt, Margaret		507-388-2438	Home Economics
Schuck, Mark		507-388-2438	Physical Ed.
Sorensen, Donald		507-345-5723	Assoc. Director
Wolthuis, Marven		507-388-9217	Mathematics

Mankato State College Staff Interested in Humanistic Innovation:

Name	Office Telephone	Home Telephone	Specialty
Buck, Ben	507-389-1215	507-345-6637	Dean, Sch. of Ed.
Ehrle, Elwood	507-389-1711	507-387-4288	D., Sch. Art, Sci.
Kline, Arlyn	507-389-1164	507-387-3933	Education Dept.
Roscoe, Donald	507-389-2616	507-234-6716	Geography Dept.
Zimmer, James	507-389-2315	507-388-5388	Chemistry Dept.

Graduate Interns at Wilson Campus School:

Barnes, Betsy	Erkel, Susan	Janovy, Darlene	McLain, Robert
Coyle, Bernard	Gackle, Cresston	Jensen, Kathleen	Nitsch, Jacobo
Eggers, John	Geilenfeldt, Margaret	Johnson, William	O'Brien, Ronald
Endresen, Terry	Hansen, David	Luber, Dennis	Olauson, Marcia

Graduate Interns at Wilson Campus School (continued):

Putnam, Bonnie	Toews, Peter
Riha, Adeline	Wachter, Carl
Sherwin, Sally	Wilhelms, Pat
Skalet, Allan	

DEPARTMENT OF GEOLOGY
NATURAL SCIENCE BUILDING
MICHIGAN STATE UNIVERSITY
EAST LANSING, MICHIGAN 48823

Consortium contact person: Harold Stonehouse

Department telephone number: 517-355-4661

Department chairman: Harold W. Scott

Department secretary: Sharon Brink

MSU

Number of earth science and/or geology majors: 85

Number of earth science and/or geology education majors: 8

Description of Program:

Perhaps the first course to "open up" at Michigan State University was the earth science in-service institute, which allowed participants to "do their own thing" and evaluate themselves. From this course the idea spread to the mineralogy course, which remains somewhat more structured than the institute for most of the students but allows those who wish to undertake independent investigations. The idea continues to spread and the faculty continues to initiate ideas for closer student-faculty relations, in an academic framework.

Staff

Name	Office Telephone	Home Telephone	Specialty
Anstey, Robert	517-353-9009	517-351-3462	Invert. Paleo.
Bennett, Hugh	517-355-4635	517-349-0245	Seismology
Cross, Aureal	517-355-4630	517-332-6187	Palynology
Ehrlich, Robert	517-353-3269	517-351-3498	Sedimentology
Fisher, James	517-353-4366	517-332-4719	Petroleum Glg.
Hinze, William	517-355-4636	517-349-1605	Geophysics
Holman, J. Alan	517-355-2370	517-337-7983	Vert. Paleo.
Miller, Maynard	517-353-7862	517-349-1713	Glacio., Geomor.
Mortland, Max	517-355-0222	517-332-8702	Clay Mineral.
Prouty, Chilton	517-355-4631	517-349-3545	Stratigraphy
Scott, Harold W.	517-355-4628	517-351-7923	Micropaleon.
Spooner, Charles	517-353-9768	517-349-4738	Geochemistry
Stonehouse, Harold	517-355-4661	517-351-4767	Mineralogy

Staff (continued)

Name	Office Telephone	Home Telephone	Specialty
Trow, James	517-355-4629	517-337-2121	Structure
Upchurch, Sam	517-353-8787	517-351-1817	Ocean., Limnol.
Vogel, Thomas	517-353-9029	517-351-8163	Petrology

Teaching Assistants:

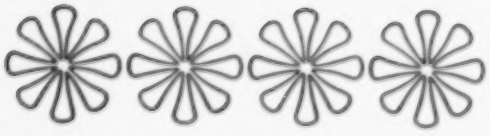
Alynanak, Nancy	Kao, Ching-Nan	Plopper, Christopher
Chambers, Richard	Kennedy, James	Ryan, Kim
Chazen, Steve	O'Hare, Maria	Steinfurth, Carl
Delmet, Dale	Orlowski, Louis	Swearingen, Ted
Eftaxiadis, Thrasos	Orzeck, John	Walker, Bruce
		Waltz, Steve

New and Special This Year:

There is continued striving for closer student-faculty relationships in many ways that are of the choosing of either party--usually the faculty member taking the initiative. Some of the most successful have an academic origin. A rug for people to sit on has been installed in the coffee room and is encouraging informality and interaction.

The entire earth science education program is new this year and emphasizes first-hand experience for students. The program includes a Seminar for Earth Science Teachers in which students discuss ways to present to a school class the material from earth science courses they are currently taking. The seminar is self-graded and oriented to individual class members' needs.

Michigan State University is conducting a TTT in Lansing, with Stonehouse serving half time for two quarters and Tallman serving half time for the year as teachers, consultants, resources for participants.



DEPARTMENT OF EARTH SCIENCE AND EXPERIMENTAL COLLEGE
MINOT STATE COLLEGE
MINOT, NORTH DAKOTA 58701

Consortium contact person: Eric Clausen

Earth Science Department:
Telephone number: 701-838-6101 ext. 271, 272, 273, 274
Chairman: DeWayne Martin
Number of majors: 50
Number of earth science education majors: 35

Experimental College:
Telephone number: 701-838-6101 ext. 334, 335
Chairmen: Eric Clausen, Mark Weber
Number of students: 150

Description of Program:
The focus in the Earth Science Department at Minot State College is on strong concern for students as people. This is seen in the relations among students and faculty members and in the degree of openness of the classes. In most courses students have a strong decision-making role and have choices between lecture-lab format and such things as written reports on projects, teaching projects in local schools, and contract systems. The Experimental College, supported in part by an UPSTEP grant, offers a two year general education program for students majoring in all disciplines and a four-year earth science teacher preparation program. The Experimental College emphasizes independent studies in the earth sciences and provides for unusually close student-faculty contact. The earth science student and his advisor meet at the beginning of each quarter to map the student's educational goals for the quarter. These goals may be met by Experimental College minicourses, professional education experiences, regular college classes, and general education experiences offered by the Experimental College such as discussions, lectures, seminars, and field trips.

Minot

Staff

Name	Office Telephone	Home Telephone	Specialty
Berkey, Gordon	701-838-6101 ext. 271	701-838-1513	Astrophys.
Bickel, David	701-838-6101 ext. 271	701-838-3849	Paleontol.
Clausen, Eric	701-838-6101 ext. 334	701-839-6454	Geomorph.
Disrud, Dennis	701-838-6101 ext. 271	701-839-3784	Ecology, Botany
Fogel, Lyle	701-838-6101 ext. 229	701-838-3868	Economics
Gessner, Susan	701-838-6101 ext. 334	701-839-4928	Ed., Journal Exper. Col.
Hoffman, Thomas	701-838-6101 ext. 334	701-838-4331	Oceanography

Name	Office Telephone	Home Telephone	Specialty
Hofwolt, Clifford	701-838-6101 ext. 271	701-838-8104	Science Ed.
Kingsley, Richard	701-838-6101 ext. 264		Psychology
Kleingartner, Connie	701-838-6101 ext. 334	701-839-4928	Admin. Ass't Experimen. College
Lemmerman, Kathe	701-838-6101 ext. 334	701-838-7657	American St.
Markell, Clark	701-838-6101 ext. 334	701-838-7823	Science Ed.
Martin, DeWayne	701-838-6101 ext. 271	701-838-4726	Mineralogy, Petrology
Nelson, Harold	701-838-6101 ext. 276	701-839-2078	English
Pederson, Darryll	701-838-6101 ext. 334	701-838-3298	Environ. Geology
Perry, Richard	701-838-6101 ext. 271	701-839-5431	X-ray crys.
Shearer, Earl	701-838-6101 ext. 229	701-838-7489	Geography
Senft, James	701-838-6101 ext. 271	701-838-7310	Mathematics
Tandberg, Gerrilyn	701-838-6101 ext. 289	701-838-6651	Literature
Walsh, Robert	701-838-6101 ext.271	701-838-7103	Earth Sci. Ed.
Weber, Mark	701-838-6101 ext. 334	701-838-8063	Glacial Geology
Wells, Glenn	701-838-6101 ext. 229	701-839-2248	Climatology

Education Department Staff Involved in Humanistic Innovation:

Name	Office Telephone	Home Telephone	Specialty
Johnson, Herbert	701-838-6101 ext. 328	701-839-3949	Elem. Ed.
Wax, Joseph	701-838-6101 ext. 246	701-839-7354	Director, Campus Experimen. School
Marking, Kasper	701-838-6101 ext. 232	701-838-2038	Dean of the College

Teaching Assistants:

Abel, Karen
*Berridge, Norlynn
Borstad, Barry
*Fjeldahl, Lanay
Hill, Marshall
Iverson, Monica
Larsen, Roger
Lukach, Robert
Miller, Charles
Moen, Karen
Ruland, Linda

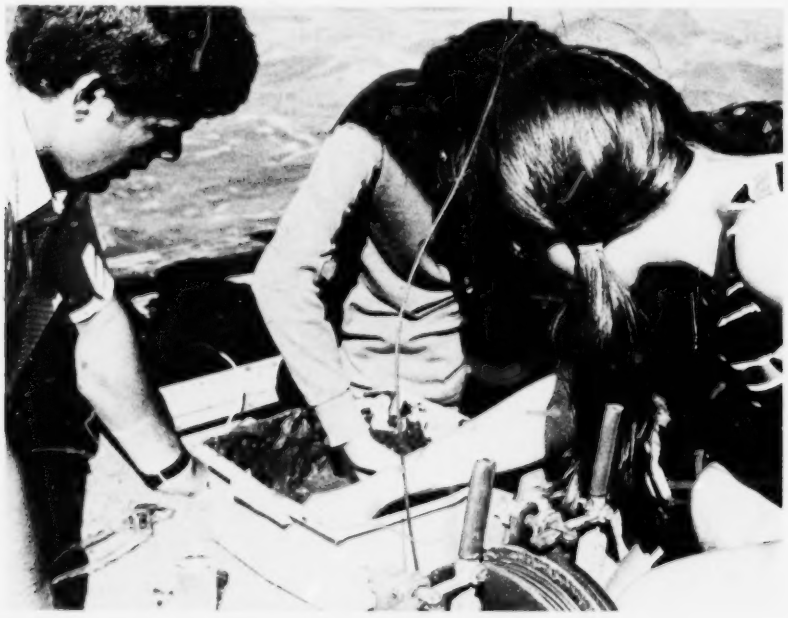
* Attended ESTPP Training Conferences

New and Special This Year:

In the Experimental College grading is on an A,B,C, no credit basis, and numbers of credits to be earned for any particular experience are flexible. The new advising system requires students to meet with their advisors twice a week. The Experimental College is placing students who wish the experience, regardless of their level, as teacher aides in a single school near Minot. Faculty supervisors are in the building at all times.

In the Earth Science Department discussion time for small group meetings has been scheduled in freshman courses which allows time for the regular students in freshman courses to discuss what they wish.

Minot is operating for local teachers a CO-OP program in earth science using a mini-course approach, as was done last year.



Name	Office Telephone	Home Telephone	Specialty
Hofwolt, Clifford	701-838-6101 ext. 271	701-838-8104	Science Ed.
Kingsley, Richard	701-838-6101 ext. 264		Psychology
Kleingartner, Connie	701-838-6101 ext. 334	701-839-4928	Admin. Ass't Experimen. College
Lemmerman, Kathe	701-838-6101 ext. 334	701-838-7657	American St.
Markell, Clark	701-838-6101 ext. 334	701-838-7823	Science Ed.
Martin, DeWayne	701-838-6101 ext. 271	701-838-4726	Mineralogy, Petrology
Nelson, Harold	701-838-6101 ext. 276	701-839-2078	English
Pederson, Darryll	701-838-6101 ext. 334	701-838-3298	Environ. Geology
Perry, Richard	701-838-6101 ext. 271	701-839-5431	X-ray crys.
Shearer, Earl	701-838-6101 ext. 229	701-838-7489	Geography
Senft, James	701-838-6101 ext. 271	701-838-7310	Mathematics
Tandberg, Gerrilyn	701-838-6101 ext. 289	701-838-6651	Literature
Walsh, Robert	701-838-6101 ext.271	701-838-7103	Earth Sci. Ed.
Weber, Mark	701-838-6101 ext. 334	701-838-8063	Glacial Geology
Wells, Glenn	701-838-6101 ext. 229	701-839-2248	Climatology

Education Department Staff Involved in Humanistic Innovation:

Name	Office Telephone	Home Telephone	Specialty
Johnson, Herbert	701-838-6101 ext. 328	701-839-3949	Elem. Ed.
Wax, Joseph	701-838-6101 ext. 246	701-839-7354	Director, Campus Experimen. School
Marking, Kasper	701-838-6101 ext. 232	701-838-2038	Dean of the College

DEPARTMENT OF EARTH SCIENCE
STATE UNIVERSITY OF NEW YORK COLLEGE AT OSWEGO
OSWEGO, NEW YORK 13126

Consortium contact person: Robert Maurer

Department telephone number: 315-341-3065

Department chairman: Robert Maurer

Department secretary: Linda Baker

Number of geology and meteorology majors: 30

Number of earth science education majors: 45

Description of Program:
The department at Oswego attempts to offer a broad selection of courses--geology, meteorology, astronomy, oceanography. Undergraduate majors are offered in geology and meteorology. A secondary earth science education major is offered through the secondary education department. Special projects are welcomed in most courses offered in the earth science department but are not accepted as a substitute for the total course.

SUCO

Staff

Name	Office Telephone	Home Telephone	Specialty
• Caplan, Peter	315-341-4253	315-343-2412	Meteorology
Cardinali, Crystal	315-341-3060	315-593-3133	Earth Science
Charlton, Robert	315-341-2296	315-343-2036	Meteorology
Chermack, Eugene	315-341-3064	315-342-0897	Meteorology
DelPrete, Anthony	315-341-4251	315-564-5452	Marine Geology
Jerred, Charles	315-341-3059	315-592-9729	Astronomy
Maurer, Robert	315-341-3065	315-343-2803	Geology
Morgan, Thomas	315-341-2304		Astronomy
Nugent, Robert	315-341-4252	315-343-2846	Geology
Pitluga, George	315-341-3039	315-343-8807	Astronomy
Schneider, Raymond	315-341-2195	315-343-2245	Geology
Shaver, Paul	315-341-3056	315-343-2232	Earth Science
Sykes, Robert	315-341-3089	315-343-3940	Meteorology
• Thomas, David	315-341-2328		Geology

Education Department Staff Involved in Humanistic Innovation:

Name	Office Telephone	Home Telephone	Specialty
• Swift, J. Nathan	315-341-2500	315-343-9557	Secondary Ed.

New and Special This Year:
A grading system that takes into consideration different kinds of study habits is being tried by Bob Charlton. He gives one letter grade for work done throughout the term such as projects and quizzes and another letter grade for a comprehensive final. The students final course grade is the

higher of the two. This gives students a chance to participate all term and get a grade or slack off until final time and not be punished for disinterest in a required science course.

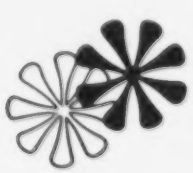
It is now possible for students to do practice teaching very early in their college careers at Oswego through special arrangement with Swift in the education department. For example, one student practice taught in a beginning earth science class during his sophomore year. This program is not suitable for all science education students, but it gives those who are ready for the experience an early start.

Anthony DelPrete's marine geology class is taught with a lecture-lab approach, but the requirements may be satisfied by working on an independent study project. Nine students chose the regular class and three are working on marine biology projects.

In addition to a basic grade determined on the basis of three out of four exams, students in Tom Morgan's survey of astronomy courses may augment their grades at any time by making book reviews or identifying stars and constellations.

For Bob Charlton's 3-week summer crash course in meteorology this year, students (from musicians to electrical engineers to prison administrators) got acquainted with each other by dividing into groups of two that reported during the last hour of every 3-hour daily session on books of their choice. The diverse backgrounds of the people produced variety in the discussions--as many topics were covered as would have been in a normal lecture course.

Pete Caplan has compressed the "this is what you have to know" part of Meteorology I with a pass-fail exam into the first half of the semester (failures can be made up). The other half consists of lectures by request, discussions, and work on outside projects and term papers. Grades are determined by contract, with outside work necessary to earn higher than a C. Unacceptable outside work is returned to the "perpetrator" for a renewed effort.



DEPARTMENT OF EARTH SCIENCES
UNIVERSITY OF NORTHERN COLORADO
GREELEY, COLORADO 80631

Consortium contact person: Dick Dietz

Department telephone number: 303-351-2647

Department chairman: Ken Hopkins (acting for Lee Shropshire this year)

Department secretary: Kathleen Antonopulos

Number of earth science majors: 20

Number of earth science education majors: 30

Description of Program:

The program focuses on training earth science teachers. Much time and energy, however, is devoted to Science 105, a non-lab earth science course required of most University of Northern Colorado students. Either a faculty member or teaching assistant is responsible for each section of this course and is free to choose the content and methodology for his section, as well as for the other courses he teaches in the department. Although courses are generally run in lecture-discussion and lab-discussion formats, the faculty operates in styles that vary from strictly formal to very informal. All courses are evaluated on an ABCDF basis, but these grades are given by self-evaluation in an increasing number of classes. There is excellent cooperation between the Earth Science Department and the Science Education Department, with much cooperative teaching taking place.

UNC

Staff

Name	Office Telephone	Home Telephone	Specialty
Cobb, Glen	303-351-2830	303-353-8329	Meteor., Ocean.
Dietz, Dick	303-351-2950	303-353-7659	Astronomy
Hopkins, Ken	303-351-2853	303-353-2064	Geology
Leafgren, Rita	303-351-2647		Geology
Matthews, Vince	303-351-2989	303-353-3591	Geology
Shropshire, Lee	303-351-2647	303-352-8778	Geology

Education Department Staff Involved in Humanistic Innovation

Name	Office Telephone	Home Telephone	Specialty
Adams, Don	303-351-3985	303-352-3595	Lab School
McClurg, Jim	303-351-2449	303-352-0728	Sci. Ed., Geology
Sund, Bob	303-351-2487	303-352-1139	Science Ed.
Trowbridge, Les	303-351-2188	303-356-0570	Science Ed.
Usher, Dick	303-351-2518	303-352-8984	Psychology
Welch, Dave	303-351-2437	303-356-0271	Psychology

Teaching Assistants:

Anderson, Jack	Smith, Dudley
Kubicek, Leonard	*Stannard, Kent

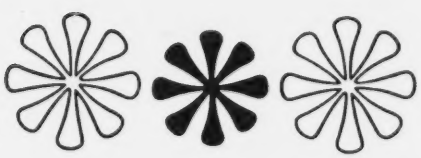
*Attended ESTPP Training Conferences

New and Special This Year:

Dick Dietz is conducting a Science 105 class using a structure similar to that originated by Stan Harris at SIU. This large freshman class divided itself into groups of from six to twelve persons around topics ranging from volcanoes to undersea exploration to man's destiny. To accomplish this the students provided a long list of possible topics and then elected to join a group concerned with the topic they felt most interesting. A group will now spend the entire quarter working only on its topic in whatever manner they choose. Groups will meet for discussion or field trips as often as they deem necessary. The only requirement is that each group meet with the instructor every other week for half an hour. One hour a week is reserved for meetings of the entire class and is devoted to films or lectures of general interest. A student will have his course grade determined by the members of his group using whatever criteria the group decides upon. Student and instructor response thus far has been extremely positive.

Ken Hopkins absolutely refuses to assign letter grades to tests and papers in his glacial geology course. They are returned with corrections and comments for the student to keep and think about. At the end of the quarter the student reviews his progress and assigns his own letter grade for the course.

Lee Shropshire, Jim McClurg, Don Adams, and Rita Leafgren are running an in-service institute for earth science teachers in northeastern Colorado. This is a repeat of last year's successful experiment in which class meetings were replaced by A-T units circulated to the participants by mail. These are supplemented by periodic regional workshops and classroom visitations by the staff.



SCHOOL OF GEOLOGY AND GEOPHYSICS
UNIVERSITY OF OKLAHOMA
830 VAN VLEET OVAL, ROOM 107
NORMAN, OKLAHOMA 73069

Consortium contact person: Edward C. Stoever, Jr.

Department telephone number: 405-325-4621

Department director: Charles J. Mankin
Associate directors: Edward C. Stoever, Jr. (undergraduate studies)
George T. Stone (graduate studies)

Department secretary: Mrs. Edell Gregory

Number of earth science and/or geology majors: 73

Number of earth science and/or geology education majors: 8

Description of program:

A major in the Department typically starts with the introductory geology course in which lab sections are conducted by TA's who are free to construct their own strategies within limits. Alternatives in course study are limited, but considerable flexibility exists in the earth science requirements. Letter grades of ABCDF are given, based at least in part on final exam scores. A Geology Intern Program, in which undergraduate majors are invited to volunteer three hours per week of their time in assisting laboratory instructors in the beginning geology course, gives an opportunity for students to try their hand at teaching early in the undergraduate program.

OU

Staff

Name	Office Telephone	Home Telephone	Specialty
Busch, Daniel A. Visiting Prof., Spring 71	405-325-4621	918-RI7-5966	Petrol. Geol.
Blatt, Harvey	405-325-5451	405-321-0215	Sediment.
Day, Howard W.	405-325-6794	405-364-3611	Meta. Petro.
DuBois, Robert L.	405-325-4971	405-329-7916	Paleomagnet.
Harper, Charles W., Jr.	405-325-5231	405-321-5268	Inv. Paleo.
Huffman, George G.	405-325-6351	405-321-5646	Stratigraph.
Kitts, David B.	405-325-6551	405-321-8831	Vert. Paleo.
Mankin, Charles J.	405-325-3031	405-321-2421	Sediment.
Myers, Arthur J.	405-325-5551	405-321-6112	Geomorph.
Norden, John A.E.	405-325-6051		Pet. Geophys.
Rusch, John J.	405-325-4621	405-364-3829	E. Sci. Ed.
Stoever, Edward C., Jr.	405-325-4621/4467	405-329-6295	E. Sci. Ed.
Stone, George T.	405-325-4621/5751	405-364-2085	Ig. Petrol.
Sutherland, Patrick A.	On leave 71-72		Inver.Paleo.
Wickham, John S.	405-325-5651	405-364-0927	Struct. Geol.
Wilson, Leonard R.	405-325-5861	405-321-2898	Palynology
Zidek, Jiri	405-325-4480		

Education Department Staff Involved in Humanistic Innovation:

Name	Office Telephone	Home Telephone	Specialty
Bibens, Robert F.	405-325-4226	405-329-7509	Sec. Education
Kidd, Gerald	405-325-2157	405-751-5937	Sec. Education
Renner, Jack	405-325-3340	405-321-4260	Sci. Education
Snider, Glenn	405-325-2480	405-321-4084	Sec. Education

Teaching Assistants:

Baumgartner, Paul
Brown, Max
Chesney, Clay
Falsch, Jim
Feenstra, Roger
Fleury, Mark
Green, Ed
Harrell, Jim
Horrall, Ken
Jones, Rick
Kutkiewicz, Andy
Lockwood, Mary
*Maw, Glayde
Moustafa, Magid
Noland, Paul
Northcote, Linda
Overby, Mac
*Petzel, Jerry
Pulling, Dave
Rose, Larry
Sibley, Duncan
Vent, Glenn

Staff in Other Departments Involved in Science Education:

Borrassa, Ron
Day, Richard
Duchon, Claude
Eddy, Amos
Herczeg, Tibor
Inman, Rex
Johnson, Ken
Nye, Mary
Patten, Charlie
Patten, Don
Roller, Duane
Sasaki, Yoshi
Schiel, Joe
Sikora, Paul
Smith, Tom
White, Jack

*Attended ESTPP Training Conference

New and Special This Year:

An NSF Academic Year Institute in Earth Science is in full swing with 17 participants. These teachers are involved deeply in a one-credit hour seminar in earth science education which is being operated on a self-directed basis.

John Rusch is conducting an in-service program for all graduate assistants involved in teaching the labs in the introductory course. A weekly seminar and video-taping of actual lab presentations are involved. In addition, individual lab instructors are designing their own field trips, with student participation voluntary.

Efforts are under way to establish a Cooperative Oklahoma Earth Science Teacher Education Program (COESTEP) involving sharing resources among the science and education departments on campus, secondary teachers and administrators in the state, various state agencies, and industry. The aim of the program is to establish one exemplary earth science teacher in each of the state's 541 secondary schools in the state. Coordinated pre-service and in-service activities to promote this goal are now being carried out, supported by the University and the State Education Department.

DEPARTMENT OF GEOLOGY & GEOGRAPHY
ST. LAWRENCE UNIVERSITY
CANTON, NEW YORK 13617

Consortium contact person: William T. Elberty, Jr.

Department telephone number: 315-379-5851

Department chairman: Pro tem., William T. Elberty, Jr
Permanent, William D. Romey

Department secretary: Alice Quackenbush

Number of earth science and/or geology majors: 35 juniors and seniors

Description of program:

The geology department at St. Lawrence University is organized as a community of learners. A junior learner (student) takes responsibility for his own learning, meeting at the beginning of each term to set goals with a senior learner (faculty member) he has chosen. These goals, revised as necessary as the student progresses, are carried out through "courses," all entitled "Independent Projects," which carry credit. The junior learner meets with his advisor and (in the case of a nonmajor) with a student preceptor (major) individually a minimum of four or five times a semester. He evaluates his own work on an ABCDF scale in consultation with senior learners. He may participate in a variety of optional group activities consisting of a departmental lecture series, "demonstration" labs, films, field trips, seminars, and any other acts the students wish to organize. A portfolio contains whatever work the learner believes will best represent him, as do the portfolios of the senior learners. The student wishing to major in geology takes his portfolio to a committee of senior and junior learners who interview him about his goals and the responsibilities of a major. The junior and senior learners, all vitally involved in the geology program and in each other, make the program a human and dynamic experience.

A more complete description of the St. Lawrence University program is available from ESTPP.

SLU

Staff

Name	Office Telephone	Home Telephone	Specialty
Elberty, William T., Jr.	315-379-6384	315-386-3923	Econ. Geol.
Erickson, J. Mark	315-379-6384		Paleontol.
Jacoby, Russell S.	315-379-6432	315-386-8813	Min.-Pet.
Romey, William	303-447-8150	303-443-6922	Anorth., People
Street, James S.	315-379-6385	315-386-2451	Pleosnarks, Geomorph.

Teaching Assistants:

The Department has no T.A.'s as such but about 30 upperclass majors act as preceptors, each helping and counseling about five beginning learners.

DEPARTMENT OF GEOLOGY
UNIVERSITY OF SOUTH CAROLINA
COLUMBIA, SOUTH CAROLINA 29208

Consortium contact person: John Carpenter

Department telephone number: 803-777-4148

Department chairman: Donald J. Colquhoun

Department secretary: Mrs. Laney Bright

Number of geology majors: 35 Undergraduates, 45 Graduates

Number of geology education majors: 0

Description of program:

A number of different kinds of alternatives are available in the Department of Geology at South Carolina. Two different major curricula have been developed, one for the general major (non-professionally inclined) and one for the intensive (pre-professional) major. Programs for interdepartmental majors are being developed. Within individual courses several faculty members are allowing student choice of projects and approach. The department is also involved in the University Without Walls and the Contemporary University, which provide other alternative approaches to education. This variety of alternatives gives the department a good deal of flexibility.

USC

Staff

Name	Office Telephone	Home Telephone	Specialty
Black, W. Robert	803-777-4148	803-779-4674	Instrumental Analysis
Colquhoun, Donald J.	803-777-4148	803-254-2034	Stratigraphy, Coastal Plain
Carpenter, John R.	803-777-4148	803-772-1839	Geochemistry
Caruccio, Frank	803-777-4148		Environ. Geol. Ground Water Geology
Conolly, John R.	803-777-4148	803-252-9176	Marine Geology
Davies, Tudor T.	803-777-4148	803-772-2120	Paleontology
Ferm, John C.	803-777-4148	803-254-2034	Sediment., Coal
Gardner, L. Robert	803-777-4148		Geomorphology
Horne, John C.	803-777-4148	803-252-3816	Sed. Petrology
Kanes, William	803-777-4148	803-772-7653	Shoreline Proc.
Lawrence, David R. (on leave 71-72)	803-777-4148		Paleontology
Millhollen, Gary	803-777-4148	803-772-2150	Igneous Petrol.
Nelson, Bruce W.	803-777-4148	803-782-6907	Sed. Geochem.
Neuman, Larry	803-777-4148		Geophysics
Secor, Donald T.	803-777-4148	803-772-1762	Structural Geol.
Sharp, W. Edwin	803-777-4148	803-253-8404	Economic Geol.

Teaching Assistants:

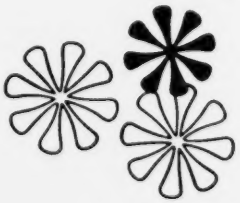
Abbott, Bill
A'[illegible]orn, Steve
Andrews, Ed
Boyd, Bill
Comer, Drew
*Czyscinski, Ken
Eason, Jim
Ellis, Jeff
Fletcher, John
Galloway, Malcolm
Gettys, Bill
Glowacz, Mike
Hanselman, Dave
Hochstein, Mike
Huckaby, Allen
Huguley, Bob
Hulse, Bob
Johnson, Frank
Martin, Dave
Molnia, Barbara
Molnia, Bruce
Moody, Marjorie
Neuhauser, Ken
Padgett, Guy
Pedlow, George
Lance, Hamilton
Reynolds, Dave
Rowlands, Dave
Schmidt, Gerry
Settlemyre, Lee
Slaughter, Carol
Stephens, Dan
Visvanathan, TR
Willis, Dave
Witkus, Mike
Zupan, Alan

New and Special This Year:

Honors Geology 101 (John Carpenter), Historical Geology 102 (Don Secor), Environmental Geology 103 (Frank Caruccio), and the sophomore-junior rock course that examines hand specimens (John Carpenter) have been opened up to give the students the choice of what they want to learn and do, individually or in small groups. Grades in these courses are determined by the students.

Two first-year in-service institutes, one in Columbia and one in Florence, involve a total of 45-50 in studying ESCP, investigative approaches, open approaches. A second-year in-service institute in environmental geology is being held in Greenville.

The Department is participating in a university-wide University Without Walls (UWW) program which allows students to select alternative learning methods. Gerry Schmidt and Ken Czyscinski are teaching an unstructured UWW evening course in geology. In addition to regular courses taught through UWW, students can select projects and receive credit for them through UWW.



DEPARTMENT OF GEOLOGY
SOUTHERN ILLINOIS UNIVERSITY
CARBONDALE, ILLINOIS 62901

Consortium contact person: Stanley Harris

Department telephone number: 618-453-3351

Department chairman: Russell Dutcher

Department secretary: Pamela Rose

Number of earth science and/or geology majors: 60

Number of earth science and/or geology education majors: 5

Description of Program:

Southern Illinois University's department of geology, which became a separate department in 1955, focuses on the preparation of geology professionals and is oriented toward field work. A course in earth science was added in 1965 for nonscience students. Since that time the number of earth science courses has increased rapidly, and four staff members now have their major responsibilities in earth science. It is hoped that the Illinois State Board of Education will soon approve an earth science major. Faculty members in the department are now beginning to offer alternatives to structure and teacher-assigned grades, and many are becoming increasingly open to new ideas.

SIU

Staff

Name	Office Telephone	Home Telephone	Specialty
Bell, Frank	618-453-3351	618-457-4973	Petro., Gen. Geog.
Bertoni, Louis	618-453-3351	618-724-4500	Earth Sci., Meteo.
Carter, Douglas	618-453-2041	618-549-2727	Physical Geo., Climate
Cohen, Arthur	618-453-3351	618-549-0050	Coal Petro., Palynology, Mod. Sed.
Davis, Rich	618-453-3351	618-549-1279	Ground Water Exp., Geop., Engin. Geol.
Dutcher, Russell	618-453-3351	618-549-3918	Coal Geol., Field Geology
Ethridge, Frank	618-453-3351	618-549-7178	Sed. Petro., Stratigraphy, Stat. Meth.
Fang, Jen-ho	618-453-3351	618-457-4281	X-ray crystall., Mineralogy
Frank, Charles	618-453-3351	618-549-7773	Earth Sci., Metamorphic Petro.
Fraunfelter, George	618-453-3351	618-549-6336	Earth Sci., Invert Paleo., Micropaleo., Strat.
Grenda, James	618-453-3351	618-549-2420	Earth Science

Staff (continued)

Name	Office Telephone	Home Telephone	Specialty
Harris, Stanley	618-453-3351	618-457-7078	Geomor., Envir. Geo., Strat.
Hood, William	618-453-3351	618-549-4266	Geochem., Miner., Econ. Geology
Horsley, Doyne	618-453-2317	618-985-4710	Geog. Methods
Jones, David	618-453-2041	618-457-4622	Geog., Meteor.
Robinson, Paul	618-453-3351	618-457-4677	Mineral., Cyrstal.
Sharpe, David	618-453-2041	618-549-3978	Meteor., Climate
Utgaard, John	618-453-3351	618-549-3412	Micropaleo., Invert Paleo., Paleo. Eco.

Education Department Staff Involved in Humanistic Innovation:

Name	Office Telephone	Home Telephone	Specialty
Hungerford, Harold	618-453-2327		Elem. Ed.
James, Helen	618-453-2239		Secondary Sci. Ed.
Robinson, Roger	618-453-2535		Dir. of Ed. Res. Bureau
Miles, David	618-453-2535		Ed. Research Bureau, Ed. Psych.

Teaching Assistants:

Adams, Scott	Gruner, Dennis	Neiman, Stuart
Brink, Marcia	Keck, Dave	Rahsman, Robert
Burd, Jim	Krantz, Dennis	Roush, Thomas
*Daniel, Marshall	Leming, Stephen	*Shomali, Bahman
Dyroff, Terry	Levine, Chuck	Shukis, Paul
Earnhart, Larry	Mahdavi, Abby	Sliva, Thomas
Eggert, Donald	Malkames, Judy	Zenable, Charles
Gopinath, T.R.	Nagai, Richard	

*Attended ESTPP Training Conferences

New and Special This Year:

Before classes began this fall, a two-day conference was held for the TA's and staff involved with the introductory course. This conference emphasized the need to see students as people.

TA's are now helping with the in-service institute, which gives them more opportunity for contact with teachers and enables them to visit and observe classrooms.

The in-service institute in earth science at Southern Illinois University started with a one-week conference at the University's outdoor labs. The very open atmosphere of the conference, the establishment of first-name relationships between instructors and participants, and the attitude that there is no distinction between instructors and participants--both share responsibility for the institute--all have helped the teachers be astonishingly innovative. Most have experimented with open-ended projects for individuals and groups.

DEPARTMENT OF GEOLOGY
UNIVERSITY OF VERMONT
BURLINGTON, VERMONT 05401

Consortium contact person: Barry Doolan

Department telephone number: 802-656-3396

Department chairman: Rolfe S. Stanley

Department secretary: Maggie Newton

Number of earth science and/or geology majors: 32±

Number of earth science and/or geology education majors: 2

Description of Program:

The introductory course has a lecture-lab format, as do most courses in the department, but the lab portion provides students with choices of topics within required areas. In addition, students have the option to drop out of formal labs and do any geologically related research they choose. The latter option allows students to evaluate themselves and carries the possibility of skipping formal lecture exams. Most courses are graded on the ABCDF system, but many upper division courses use self-evaluation and peer evaluation. All students are expected to be involved at some time during their academic careers in independent research activities.

Staff

Name	Office Telephone	Home Telephone	Specialty
Bucke, David P.	802-656-3396	802-879-7273	Sedim. Petro., Stratigraphy
Doolan, Barry L.	802-656-3396	802-878-8417	Igenous and Metam. Petrology
Drake, John C.	802-656-3396	802-862-1425	Mineralogy
Hunt, Allen S.	802-656-3396	802-863-3768	Paleo., Sedimen.
Stanley, Rolfe S.	802-656-3396	802-863-4974	Struct. Geology, New England Geo.
Wagner, W. Philip	802-656-3396		Glacial Geo., Geom., Environmental Geo.

Teaching Assistants:

April, Richard H.
*Acker, Terry F.
Barton, Thelma E.
Dean, Steve L.
Eiben, Dave B.
Gillespie, Richard P.
Malter, John A.
*Rouleau, Kathy E.

*Attended ESTPP TA Training Conference last year

New and Special This Year:

All students in the introductory course were given a choice this year of a structured or an open lab. Those who chose the open-ended option were

scheduled into one section, taught by a TA.

Phil Wagner's course in environmental problems deals with student-devised problems in a seminar setting instead of having lectures.

In Vermont's experimental college, Barry Doolan is working in a new Geology I program that gets students away from the classroom with open labs and field trips. Attendance at the regular group meetings, during which students report to classmates on their projects, is optional. Lectures are given only when the students request them. There are no tests or grades, but students keep portfolios of their work for reference. The course may be taken for one or two years, and the amount of credit that may be applied to a geology major is determined by the contents of the portfolio.

DEPARTMENT OF EARTH SCIENCES
WESTERN CONNECTICUT STATE COLLEGE
181 WHITE STREET
DANBURY, CONNECTICUT 06810

Consortium contact person: Donald Groff

Department telephone number: 203-792-1400 Ext. 289

Department chairman: Donald Groff

Department secretary: 203-792-1400 Ext. 222

Number of earth science majors: 41 (20 of whom are freshmen)

Number of earth science education majors: 18

Description of Program:

The number of earth science staff members at Western Connecticut State College has increased sharply in the last few years, as has the desire for openness. Progress has been good despite large amounts of administrative red tape that hinder the implementation of innovations. This progress is evidenced by the fact that, among other courses, the Earth Science Concepts course for freshmen has a totally open lab with student-chosen projects. Although ABCDF grades are required by the University for all courses, several staff members are experimenting with student self-evaluation. Many courses in science education are also taught in an open manner and complement the development of greater freedom in the earth science courses.

WCSC

Staff

Name	Office Telephone	Home Telephone	Specialty
Bragdon, Frederick	On leave: University of Maine		General Geology
Caldwell, Katherine		203-792-1139	Struct. Petro.
Chen, Chin	203-792-1400 ext. 256	914-PE5-6586	Ocean., Sedim.
Goldstein, Melvin	203-792-1400 ext. 210	203-263-4745	Meteor. (Dynamic)
Groff, Donald	203-792-1400 ext. 289	203-775-9468	Economic Geology
Lu, Phillip	203-792-1400 ext. 228	203-743-2483	Astronomer (Observational)
McNamara, Eugene		203-744-3475	Geo. Ed., Earth Sci. Education

Education Department Staff Involved in Humanistic Innovation:

Name	Office Telephone	Home Telephone	Specialty
Berensen, David	203-792-1400	203-438-2160	Education Dept.
Toporoski, Dolores D.	203-792-1400	203-744-0903	Elementary Ed.

New and Special This Year:

The lab part of Western Connecticut State College's freshman course, Earth Science Concepts, is completely open this year. With 200 students in the class, "at first it was a killer, but we're toning up to it." (D. Groff) Several students in the course have volunteered to join Groff in polling the opinions of students to learn the impact of this new approach and ways in which the course may be improved.

Groff has "confessed to my Physical Geology students my inability to evaluate them (not innovative, perhaps stupid)." They will cooperate in the evaluation without his introducing anything artificial on which evaluation is to be based.

Goldstein is experimenting in weather forecasting using the open lab format.

Lu is experimenting with the open lab with graduate students, but it has met with limited success, perhaps because of competition for the time of the graduate students (in-service teachers).

DEPARTMENT OF GEOLOGY
WESTERN MICHIGAN UNIVERSITY
KALAMAZOO, MICHIGAN 49001

WMU

Consortium contact person: W. Thomas Straw

Department telephone number: 616-383-1775

Acting department chairman: W. Thomas Straw

Department secretary: Carol Beach

Number of earth science and/or geology majors: 70-80

Number of earth science and/or geology education majors: 30-40

Description of Program:

Western Michigan University's program, with its focus on teaching students rather than on doing research, makes it a fertile ground for a humanistic approach to learning. Following the lead toward openness of two or three staff members, the entire department has become very interested in opening up the department and forming a human community.

Staff

Name	Office Telephone	Home Telephone	Specialty
Davis, Richard A.	616-383-0067	616-381-6029	Phys. Strat., Sed. Petro., Nearshore Processes

Staff (continued)

Name	Office Telephone	Home Telephone	Specialty
Grace, John D.	616-383-0063	616-381-0413	Min., Geochem.
Kuenzi, W. David	616-383-0063	616-375-5436	Strat., Terrest. Sedim., Paleo.
• Mariotti, Philip	616-383-0062	616-375-0486	Metamorphic Igneous Petro., Geochem.
McGehee, Richard V.	616-383-0067	616-381-9641	Petro., Struct. & Field Geology
Passero, Richard	616-383-0062	616-381-7976	Earth Sci. Ed., Petrol., Geology
Scharnberger, Chas.	616-383-0062	616-327-5942	Geophysics, Geotectonics, Struct. Geo., Rock magnet.
Schmaltz, Lloyd J.	616-383-0062	616-381-9114	Glacial Geo., Geomorphology
Straw, W. Thomas	616-383-1776	616-342-0558	Fluvial Geomor., Eco. Geology

Teaching Assistants:

Allen, Gerald	Fingleton, George	McLeod, Bruce
Coons, William	Johann, William	Malanchak, John
Cote, Michael	Kern, Ernest	Moss, Michael
Crealease, Charles	Kimmel, Richard	O'Sullivan, Joseph

New and Special This Year:

Tom Straw is conducting one of his classes with a wide variety of alternatives. Students may do all the prepared lab exercises or the particular exercises they choose, or they may work on projects of their own choice. In order to receive a grade, they must score 85 or better on tests, but the tests may be taken as often as necessary to achieve a score of 85.

Dick Passero's regional geology class is taking the form of a seminar with equal responsibility for learning on students and faculty.

What the department should be and what directions it should take are the topics for a series of meetings for students and faculty. Students <u>are</u> interested and participating.

A place of one's own to work is important. Each graduate student has his place; now half a dozen undergraduates have places specially set aside also. The goal is to give each undergraduate his own space.

An in-service program that meets on Saturdays is concentrating on giving experience in earth science to teachers who have earth science classes but no earth science background. The program is an NSF-funded science and mathematics master's degree program.

DEPARTMENT OF GEOLOGY
WISCONSIN STATE UNIVERSITY
SUPERIOR, WISCONSIN 54880

Consortium contact person: Joseph Mengel

Department telephone number: 715-392-8101, ext. 261

Department chairman: Paul Tychsen

Department secretary: Joyce McCumber

Number of geology majors: 40

Number of geology education majors: 15

Description of program:

Students in most classes at WSC are offered a choice between the normal structured approach, which allows students to suggest what topics they would like to cover and what methods of grading they would prefer, and an unstructured approach. Lecture is minimized in the classes and group activities are emphasized. Although few students in each class choose the unstructured option, the existence of the alternative has sparked interest.

WSU

Staff

Name	Office Telephone	Home Telephone	Specialty
Dickas, Elbert	715-392-8101	715-392-1958	Geophysics and Stratigraphy
Harris, William	715-392-8101	715-394-4942	Paleontology and Geomorphology
Mengel, Joseph	715-392-8101	715-392-1610	Structural and Econ. Geology
Tychsen, Paul	715-392-8101	715-392-2595	Mineral & Earth Science Educ.

Teaching Assistant:
Doug Bartley

Special Programs:

All elementary education people at WSU take a 3-year science sequence, a year each of physics, biology, and earth science. Paul Tychsen is teaching the earth science portion, using ESCP materials as a base and providing several alternative activities for students.

A 5-night minicourse in palynology, held October 18-22 and sponsored by AGI, was received enthusiastically by the 28 people who took it. Taught by Dr. Leonard Wilson, the course for teachers, undergraduates, and graduates was project-oriented and was intended to provide for the class members a basis for research projects. The Department was so pleased with the results of the course that a series of such minicourses is now being planned for second semester.